

1 **Q. SHOULD THE COMMISSION ALLOW VERIZON TO APPLY**
2 **ADDITIONAL CHARGES TO NEW ENTRANTS FOR PROVIDING A**
3 **“COORDINATED CUTOVER” OR “HOTCUT”?**

4 **A.** No, it should not. As a matter of policy, the Commission should reject Verizon’s
5 proposed costs for a coordinated cutover. Minimizing service disruptions should
6 be a basic business priority for both Verizon and new entrants. In those instances
7 in which some effort is required to communicate and to perform work in
8 accordance with an integrated schedule, that effort should be considered integral
9 to the obligation of each company, not an additional frill. Each company should
10 bear its own costs of minimizing customer disruption.

11 In UNE pricing proceedings involving Verizon (formerly Bell Atlantic),
12 the states of New Jersey and Pennsylvania have already reached exactly that
13 conclusion. In rejecting such charges, the New Jersey Board of Public Utilities
14 concurred with the “position that coordinated cut-overs are an obligation that all
15 carriers have in order to minimize customer inconvenience.”³⁷ The New Jersey
16 Board further found that the process necessary to coordinate order due times was
17 not significantly different from the process that Bell Atlantic routinely used to
18 establish commitment times for its retail customers and that, therefore, “no charge
19 is appropriate.”³⁸ Likewise, the Pennsylvania Public Utility Commission adopted

³⁷ New Jersey Board of Public Utilities, In the Matter of the Investigation Regarding Local
Exchange Competition for Telecommunications Services, Docket No. TX95120631,
Decision and Order dated December 2, 1997, at 155.

³⁸ *Id.*

1 an Administrative Law Judge’s conclusion that Bell Atlantic’s “proposed charge
2 for ‘coordinated cutover,’ should be rejected, both on policy grounds and due to
3 insufficient cost support.” The Pennsylvania Administrative Law Judge “agreed
4 with MFS that, because a coordinated cut-over charge is so closely associated
5 with the changing of carriers, the charge should be borne by all LECs so as not to
6 discourage customers from switching carriers.”³⁹

7 Finally, our experience in other jurisdictions indicates that entrants do not
8 actually get anything other than parity with the installation procedures the
9 incumbent local exchange carrier provides to itself in return for paying
10 “coordination” charges. In other words, for their retail services, incumbent local
11 exchange carriers have developed means to automatically coordinate service order
12 activities and, thereby, minimize service interruptions. Verizon does not charge
13 its retail customers extra for this type of service, nor should Verizon charge
14 competitors more so that they (and their customers) will not receive inferior
15 service to that Verizon provides to retail customers. Therefore, the Commission
16 should consider the cost, if any, of coordinating service cutover as a mutual
17 obligation of both the new entrant and Verizon.

³⁹ See Pennsylvania Public Utility Commission, Docket Nos. A-310203F002, A-310213F0002, A-310236F0002 and A-310258F0002, Opinion and Order - Short Form, adopted July 18, 1996, at 13.

1 **Q. WHY SHOULDN'T MANUAL COORDINATION COSTS BE INCLUDED**
2 **IN A FORWARD-LOOKING ESTIMATE OF NON-RECURRING COSTS?**

3 A. Coordination of provisioning activities is one of the basic capabilities supplied by
4 modern OSS. Other than for the manual work that is actually required to make
5 and test physical connections in its network, Verizon's OSS coordinate its entire
6 order provisioning process so that no manual intervention is required for most
7 mass-market retail services.⁴⁰ Therefore, a forward-looking non-recurring cost
8 study should recognize that the coordination required to provision basic services
9 is automated. The Commission must not allow Verizon to short-circuit the
10 efficiency of its OSS so that new entrant orders require manual coordination while
11 its own retail service orders do not.

12 **J. VERIZON'S BUNDLING OF DISCONNECT COSTS INTO**
13 **CONNECT CHARGES VIOLATES COST CAUSATION.**

14 **Q. IS IT APPROPRIATE, AS VERIZON'S COST PANEL SUGGESTS,⁴¹ TO**
15 **ADD DISCONNECT COSTS TO CONNECT COSTS?**

16 A. No. Verizon's non-recurring cost studies inappropriately include disconnect costs
17 in the connect charges. As Ms. Murray explained in her direct testimony, Verizon
18 does not incur the costs of disconnection until or unless a facility is disconnected.
19 Requiring a new entrant to pay for disconnection at the time it orders a

⁴⁰ See, e.g., Bell Atlantic Maryland Response to AT&T/MCI Data Request No. 1, Questions 16, 24 and 28, Public Service Commission of Maryland Case 8786.

⁴¹ Verizon Cost Panel Direct at 335-336.

1 connection, therefore, violates cost causation, and, because the time until
2 disconnection is uncertain, raises needless “time value of money” issues. In
3 addition, bundling connection and disconnection costs for unbundled network
4 elements unnecessarily aggravates the barrier to entry that up-front charges create.

5 **Q. DOES VERIZON’S COST PANEL PROVIDE SUFFICIENT**
6 **JUSTIFICATION FOR BUNDLING DISCONNECT COSTS WITH**
7 **CONNECT COSTS?**

8 A. No. Verizon’s Cost Panel erroneously argues that disconnect costs should be
9 bundled with installation costs for unbundled network elements because such
10 costs have traditionally been bundled in the retail market.⁴² It does not follow that
11 new entrants should likewise pay for disconnecting at the time they pay for
12 connecting a new unbundled network element. The rate design policies that were
13 “traditionally” followed in a monopoly retail market have no necessary
14 application to a wholesale environment, particularly when the wholesale
15 environment involves transactions between a dominant incumbent provider and its
16 dependent competitors.

17 The typical rationale for bundling connect and disconnect charges for retail
18 customers is the difficulty of levying and collecting a disconnect charge after the
19 termination of service to a customer who may be leaving the incumbent’s service

⁴² As Ms. Murray noted in her direct testimony, to the extent that end users currently pay for both connections and disconnections at the time they order service, this practice is (continued)

1 territory. This rationale has limited applicability in the context of an ongoing
2 wholesale relationship between Verizon and another local exchange provider in its
3 service territory. A new entrant must maintain its standing as a wholesale
4 customer with the incumbent or go out of business.

5 Likewise, Verizon's assertion that the present worth factor it applied to its
6 disconnect cost solves the problem is incorrect. For example, a successful new
7 entrant may continue to lease a particular unbundled loop throughout the course of
8 providing service to several different end-user customers (at the same location)
9 over many years.⁴³ In that context, it makes no sense to force the new entrant to
10 pay Verizon for a future disconnect in advance, even at a discounted level. Nor
11 does the discounting eliminate the barrier to entry.

12 For all of these reasons, a disconnect charge should be only be assessed if
13 and when the new entrant asks the incumbent to disconnect facilities, and not
14 before. This makes the disconnect charge follow the principles of cost-causation.

questionable because the facilities are often not physically disconnected when service is terminated.

⁴³ For example, a new entrant might choose not to disconnect customers at the time they vacate particular premises. The advantage of that decision is that, once the same premises is reoccupied, the new tenant would have a "warm dial tone" to the new entrant's business office. The alternative is either to eliminate the efficiency of maintaining warm dial tone or perpetually to renew Verizon's monopoly by forcing all locations to return to Verizon service whenever ownership changes.

1 **Q. WOULD DISCONNECTION OCCUR IN ALL CASES WHEN A NEW**
2 **ENTRANT CEASES TO USE FACILITIES?**

3 A. No. When a new entrant serves an end user using either total service resale or
4 combined unbundled network elements, there would be no physical disconnection
5 of facilities required when the new entrant ceased to use those facilities.⁴⁴ In this
6 case, there should be no disconnection charge. Moreover, if the end user became
7 the customer of the new entrant by migration from the incumbent, rather than as a
8 new install, the end user would already have paid for disconnection when that end
9 user initially took service from the incumbent. That is, an end user who migrates
10 would, in effect, be charged twice for disconnection, once when beginning service
11 with Verizon and then again when moving to a competitive provider. Verizon
12 (formerly Bell Atlantic) acknowledged this potential for double-recovery in New
13 York, when its line sharing witness panel supplied the following question and
14 answer:

15 Q. How are the costs of disconnecting BA-
16 NY's service, prior to cross-connecting to
17 the splitter, recovered?

18 A. Those costs are recovered in the initial BA-
19 NY retail access line installation, in
20 compliance with long standing cost recovery

⁴⁴ Verizon supports this concept by not charging any CO Wiring non-recurring cost associated with "Two Wire Analog-Digital Conversion UNE-P Initial" element.

1 policy by this Commission. They are not
2 imposed on the CLEC.⁴⁵

3 The same logic applies to a migration order. As the New York panel noted, the
4 disconnect costs were already recovered, in advance, when the retail access line
5 was installed.

6 **Q. CAN THE COMMISSION ADOPT CONNECT AND DISCONNECT**
7 **CHARGES SEPARATELY?**

8 A. Yes. In his direct testimony, Mr. Walsh appropriately reported separate connect
9 and disconnect costs that provide the detail necessary to establish separate cost-
10 based connect and disconnect charges. Furthermore, although Verizon bundled
11 connection and disconnection costs to report its results, its own workpapers
12 develop those costs separately.⁴⁶

13 Separation of disconnect costs minimizes the initial barrier to entry and
14 more closely links costs and cost recovery with the manner in which Verizon
15 actually incurs costs, thereby eliminating the effect of debatable assumptions
16 about the future level of customer churn. It also provides the correct signals to all
17 service providers.

⁴⁵ Panel Testimony of Bell Atlantic - New York on Costs and Rates for Loop Conditioning and Line Sharing for DSL-Compatible Loops, February 22, 2000, NYPSC Case 98-C-1357, at 39-40.

⁴⁶ Verizon's disconnect assumptions are somewhat nonsensical. For example, Verizon includes more travel time in its disconnect costs for a loop than in its connect costs.

1 **Q. HOW WILL BREAKING OUT DISCONNECT COSTS PROVIDE THE**
2 **CORRECT PRICE SIGNALS TO ALL SERVICE PROVIDERS?**

3 A. “Unbundled” non-recurring charges for installation and disconnection reward
4 good service and punish bad service. The rate of customer churn for competitors
5 should be inversely correlated with the desirability of their service offerings.
6 With “unbundled” non-recurring charges for installation and disconnection,
7 providers of superior service will reap the benefit of the longer customer retention
8 intervals attributable to that superior service, and providers of inferior service will
9 bear the higher disconnection cost—on a Net Present Value (“NPV”) basis—
10 attributable to their more rapid customer churn. In contrast, Verizon’s proposal to
11 build an average recovery of cost for customer disconnection into the cost of all
12 service orders based on an average customer retention interval would penalize the
13 provider of superior service and reward the inferior provider by equalizing the
14 disconnection cost that each incurs.

15 **III. VERIZON’S WORK-TIME ESTIMATES REFLECT A FAULTY**
16 **SURVEY-BASED STUDY METHODOLOGY.**

17 **Q. HOW DID VERIZON DERIVE ITS WORK-TIME ESTIMATES FOR ITS**
18 **NON-RECURRING COST ESTIMATES?**

19 A. Verizon apparently derived its work-time estimates for most of its non-recurring
20 cost estimates by surveying its employees across the East Coast region.⁴⁷

⁴⁷ Verizon Cost Panel Direct at 312.

1 **Q. DID VERIZON PROVIDE DETAILS CONCERNING THE SURVEY**
2 **RESPONSES?**

3 A. To a limited extent, yes. Verizon has not provided details concerning how the
4 company developed its work times from the survey responses. However, in
5 response to discovery from AT&T and WorldCom, Verizon provided some detail
6 on the survey responses itself. Nevertheless, these results are often nonsensical
7 and internally inconsistent. In response to AT&T/WCOM 6-21, Verizon provided
8 a spreadsheet purportedly including the individual time estimates from each
9 respondent. In response to AT&T/WCOM 6-31, Verizon provided what it
10 purports to be the number of responses received for each survey task. These two
11 responses do not line up. For example, Verizon VA's Response to
12 AT&T/WCOM 6-31 claims that Verizon received 138 survey responses for
13 RCCC task 1 for the Two Wire New Initial element, while Verizon VA's
14 Response to AT&T/WCOM 6-21 contains only 11 individual responses.

15 The data supplied by Verizon are unreliable in other ways as well. The
16 means and medians of survey responses provided in Verizon VA's Response to
17 AT&T/WCOM 6-31 do not match the means and medians of the individual
18 responses in Verizon VA's Response to AT&T/WCOM 6-21, nor do the data that
19 Verizon provided in response to AT&T/WCOM 6-21 match Verizon's
20 assumptions for its non-recurring cost model. Furthermore, Verizon's discovery
21 responses do not seem to include all of the individual survey responses that

1 Verizon received. Verizon purportedly made some adjustments to the survey data
2 which might account for this discrepancy.⁴⁸ However, in most cases, we cannot
3 tell what adjustments were made or why. Verizon has proffered no
4 documentation of the adjustments.

5 Despite these flaws, we have some information that we can use in our
6 evaluation of Verizon's work-time cost study. The Verizon study is the result of
7 the same footprint-wide survey that the company submitted in proceedings in
8 several other states with which we are familiar, such as New York and Maryland.
9 Indeed, Verizon acknowledges that the studies and presentation it uses in this
10 proceeding are "essentially the same as those recently submitted in New York ...
11 [and] Maryland...."⁴⁹ Therefore, we rely to some extent on publicly-available
12 data from those states in our analysis of Verizon's survey. Nevertheless, the data
13 available by no means present a complete picture of Verizon's survey and its
14 subsequent manipulation of the values.

15 **Q. IS THE METHODOLOGY ON WHICH VERIZON HAS BASED ITS**
16 **PROPOSED NON-RECURRING CHARGES A RELIABLE BASIS FOR**
17 **SETTING PRICES?**

18 A. No. Verizon would have this Commission believe that its non-recurring task
19 times are "based on a rigorous survey of personnel actually involved in the

⁴⁸ Verizon Cost Panel Direct at 311; Verizon Response to AT&T/WCOM 6-33.

⁴⁹ Verizon Cost Panel Direct at 302.

1 relevant work functions under study.”⁵⁰ To the contrary, Verizon committed
2 numerous errors in its survey design, data collection and data processing. These
3 errors contributed to the inflation of Verizon’s study results and render those
4 results useless for estimating efficient work times.

5 **Q. WHAT IS WRONG WITH VERIZON’S SURVEY DESIGN?**

6 A. At the most fundamental level, Verizon asked the wrong question of its survey
7 respondents. Verizon’s “Instructions for Providing Estimates of Average Time”
8 state:

9 When making your initial estimate, estimate the
10 actual time it *does* take to perform the activity in its
11 entirety, not the time that it *should* take.⁵¹

12 As a result, respondents were likely to give work-time estimates that are
13 inefficient and not forward-looking. Although Verizon purports to have made
14 forward-looking adjustments to these estimates, in many instances, Verizon made
15 insufficient adjustments.⁵² In fact, there are many workgroups and entire non-
16 recurring charges for which Verizon made no forward-looking adjustments at all.

⁵⁰ *Id.* at 311.

⁵¹ Verizon Exhibit Part H, Section K, page 2 of 2, emphasis in original.

⁵² We provide numerous examples of Verizon’s failure to apply sufficient forward-looking adjustments throughout this testimony.

1 For example, Verizon made no forward-looking adjustments to any
2 “conditioning” activity time.⁵³

3 At a most basic level, Verizon did nothing to educate survey respondents
4 concerning the nature of forward-looking cost studies. As a result, the work-time
5 estimates provided by survey respondents include an inherent (although
6 unquantifiable) upward bias because the estimates reflect embedded/historic
7 practices and plant, not efficient forward-looking practices performed on modern
8 plant in the face of competition.

9 **Q. IS THERE ANY EVIDENCE THAT VERIZON’S SURVEY**
10 **INSTRUCTIONS AND DATA PRODUCED INACCURATE WORK-TIME**
11 **ESTIMATES?**

12 A. Yes. Verizon’s vague instructions to survey respondents necessarily invited a
13 disparate range of work-time estimates that do not accurately reflect the efficient
14 amount of time it takes to complete particular tasks. By including the obvious
15 outliers produced by these vague instructions, Verizon compounded the upward
16 bias in its survey, thus resulting in higher-than-accurate work-time estimates.

17 In response to Verizon’s vague instruction to “estimate the actual time it
18 *does* take to perform the activity in its entirety,” the survey respondents provided

⁵³ By “conditioning” activities we mean those tasks Verizon has included in its Engineering Work Order, bridged tap removal and load coil removal elements. Verizon has assigned each of those activities a “forward-looking adjustment” of 100%. Verizon Wholesale Non-Recurring Cost Model.

work-time estimates that varied widely from individual to individual. The following examples from Verizon's survey results illustrate this point.⁵⁴

Two Wire New Initial:

- "Notify CLEC of line/circuit completion."—The minimum estimate was one minute, the maximum was 120 minutes (two hours). The average was 10.56 minutes, the median was 5 minutes.

Two Wire Hotcut Initial:

- "Restorals & Service Interruptions: handle all Restoral requests." — The minimum estimate was two minutes, the maximum was 120 minutes (two hours). The average was 32.37 minutes, the median was 20 minutes.

Two Wire Hotcut Additional:

- "Restorals & Service Interruptions: handle all Restoral requests." — The minimum estimate was one minute, the maximum was 180 minutes (three hours). The average was 30.21 minutes, the median was 10 minutes.⁵⁵

Engineering Work Order:

- "Check for and obtain any necessary permits" — The minimum time was five minutes, the maximum was 540 minutes (nine hours). The average was 90.31 minutes, the median was 30 minutes.

⁵⁴ Verizon Response to AT&T/WCOM 6-31. For each of these examples, the average survey time (without adjustments) provided in New York (Verizon New York's Response to MCI-BA-66 in NYPSC Case 98-C-1357) is precisely the time that Verizon used in its Virginia study. Therefore, we assume that Verizon has made no modifications to the survey results for these specific tasks.

⁵⁵ We note that this is the same task as is included in Two Wire HotCut Initial,

- 1 • “Update LFACS and LIVEWIRE.” — The minimum time was one
2 minute, the maximum was 260 minutes (4.3 hours). The average
3 was 45.97 minutes, the median was 10 minutes.
4
- 5 • “Send schematic to Engineering Clerk for drafting of work print
6 and preposting of cable plat(s).” — The minimum time was one
7 minute, the maximum was 240 minutes (4 hours). The average
8 was 14.81 minutes, the median was 5 minutes.
9
- 10 • “Receive schematic from engineer for drafting.” — The minimum
11 time was one minute, the maximum was 90 minutes (1.5 hours).
12 The average was 10.50 minutes, the median was 2 minutes.
13

14 Even a cursory evaluation of this range of results suggests that respondents
15 were not consistently answering the same question. For example, one likely
16 explanation for the range of results from *one minute* to *nine hours* for the task
17 “Check for and obtain any necessary permits” for the Engineering Work Order is
18 that the first respondent is estimating the time actually required for the relevant
19 employee to perform the task and the second respondent is estimating the elapsed
20 time from transmittal of a request for the “necessary permits” to the receipt of that
21 permit. The first time is relevant to the estimation of the cost that Verizon incurs
22 to perform activities, the second is not. Yet a comparison of the survey results to
23 Verizon’s study inputs reveals that Verizon included extreme and obviously
24 incorrect outliers such as the 540-minute time estimate for this task in computing
25 the average work time used as its study input.

26 This disparity in results should have led Verizon to question the validity of
27 its survey design. Instead, Verizon compounded the inaccuracies by using the
28 average (rather than the minimum or median) time reported as the work-time

1 input to its cost study. This approach grossly overstates the time it takes most
2 workers to complete a task, and thus produces a work-time estimate that does not
3 represent an efficient, forward-looking cost. For over 80% of Verizon's work
4 times, the arithmetic averages exceed the median estimates, in many cases by a
5 substantial amount, reflecting the skewed distribution of responses.⁵⁶ In many
6 cases, the median estimates are far closer to the lowest work estimates provided
7 by any survey respondent, whereas the average estimates significantly exceed the
8 minimum and median times. Despite its claim that it has eliminated outliers from
9 its study, Verizon plainly does include one or more high outlier estimates in its
10 calculations.⁵⁷ For example, in the case of the task "Receive schematic from
11 engineer for drafting" listed above, the mean time (10.50 minutes) was over five
12 times the median (2 minutes). Verizon used the mean. The high estimate in this
13 case was 90 minutes, three times the next highest estimate of 30 minutes.

⁵⁶ Verizon Response to AT&T/WCOM 6-31.

⁵⁷ For example, Verizon's survey results show that for the task "Access WFA/C to begin coordination process. (Screener)," the minimum estimate was one minute and the maximum estimate was ten minutes. (See Verizon Response to AT&T/WCOM 6-21.) The median of the estimates for this task was one minute, meaning that more than half (in fact seven out of eleven) of the respondents gave one minute as their estimate. Yet Verizon has assumed *****BEGIN VERIZON PROPRIETARY ***** END VERIZON PROPRIETARY***** in its non-recurring cost model. (In response to AT&T/WCOM 6-31, Verizon has inexplicably listed the median of the survey estimates as 2 and the average as 2.63, but this is clearly incorrect based on the data provided in response to AT&T/WCOM 6-21.)

1 Removing just this estimate (the 90-minute outlier) drops the average time to 6.31
2 minutes, a 40% decrease.⁵⁸

3 **Q. VERIZON CLAIMS THAT IT HAS REMOVED OUTLIERS.⁵⁹ DOES**
4 **THIS CORRECT ITS STUDY?**

5 A. No. Verizon VA has provided no information regarding its supposed removal of
6 outliers. Furthermore, the numerous examples we provided in the last answer
7 demonstrate that Verizon has *not* removed all obvious outliers.

8 Verizon has also failed to exclude responses from individuals who clearly
9 did not understand what they were being asked to estimate. For example, one
10 respondent apparently gave an estimate of 960 minutes (16 hours) for each of
11 three different Engineering Work Order tasks: “Designs work requirement (e.g.,
12 remove bridged tap(s), remove load coils) after research of cable plat(s),” “Draws
13 schematic of work required including outside plant locations,” and “Completes
14 the work print.” The total of this respondent’s estimates for the Engineering
15 Work Order tasks was 4,045 minutes or *over 67 hours*.⁶⁰ Verizon should not have
16 made any use of this respondent’s survey because the task times reported are not
17 even facially plausible. Yet, Verizon apparently included this respondent’s

⁵⁸ Verizon Response to AT&T/WCOM 6-21.

⁵⁹ Verizon Cost Panel Direct at 311.

⁶⁰ Verizon New York’s Response to RLI-BA-134 in NYPSC Case 98-C-1357. As we noted above, Verizon acknowledges that the survey responses here are “essentially the same” as those provided in New York.

1 estimate in its average for the “Complete the work print” task,⁶¹ the “Check for
2 and obtain any necessary permits” task, and possibly other tasks as well.

3 Moreover, as discussed below, the very small number of survey responses
4 for many tasks make it difficult, if not impossible, to determine true outliers.
5 Regardless, even if Verizon has removed some of the more obvious and egregious
6 outliers, these adjustments have not addressed, but instead have masked, the
7 fundamental design flaws inherent to Verizon’s study. Indeed, many of the
8 nonsensical results of Verizon’s study highlight defects in its survey design that
9 skew its results upward.

10 For example, Verizon VA appears to have removed the maximum estimate
11 of 1,440 minutes (24 hours) it received for the Engineering Work Order task of
12 “acquire necessary and appropriate approval,”⁶² but that does not address the
13 fundamental problems that would lead one respondent to answer *one minute* and
14 another to answer *24 hours* for the same task. And, Verizon has still assumed
15 *****BEGIN VERIZON PROPRIETARY ***** END VERIZON**
16 **PROPRIETARY***** for that task in its non-recurring cost model, still well above
17 the purported median of ten minutes. Even more troubling, the individual
18 responses for this task provided by Verizon VA in response to AT&T/WCOM 6-

⁶¹ The respondent’s estimate of 960 minutes for this task, is three times as high as the next highest survey response of 330 minutes. The minimum estimate for this task was one minute, the median was 45 minutes. Verizon Response to AT&T/WCOM 6-21.

⁶² See Verizon New York’s Response to MCI-BA-66, NYPSC Case 98-C-1357.

1 21, supposedly adjusted to remove outliers, yield a mean of 9.7 minutes and a
2 median of 5 minutes. These figures make Verizon's assumed task time appear
3 even more inflated.

4 **Q. ARE THE WORK-TIME ESTIMATES PROVIDED BY PERSONNEL IN**
5 **VERIZON'S STUDY RELIABLE?**

6 A. No. Although Verizon's Cost Panel represents survey respondents as "personnel
7 actually involved in the relevant work functions under study,"⁶³ these employees
8 provided extremely disparate estimates for the same task. These inconsistent
9 results are not limited to the more extreme examples listed above, but are in fact
10 pervasive throughout the survey. For example, for the removal of underground
11 load coils task "set up the inside of the manhole for work to be done," one
12 respondent gave the "typical" time as five minutes; another gave it as 240 minutes
13 (four hours).⁶⁴ It is implausible that two employees familiar with this task on a
14 day-to-day basis could provide such divergent estimates if they both understood
15 the question in the same manner. We believe such inconsistent results suggest
16 either that, due to the vague direction provided them, respondents were not
17 answering the same question or that some respondents were not at all familiar
18 with the tasks at issue.

⁶³ Verizon Cost Panel Direct at 311.

⁶⁴ Verizon VA's Response to AT&T 6-31.

1 **Q. DID VERIZON SURVEY A LARGE ENOUGH NUMBER OF**
2 **EMPLOYEES?**

3 A. No. Verizon surveyed what must be a small fraction of the total number of
4 employees who perform the kinds of tasks included in its non-recurring cost
5 study. In fact, Verizon relied on a very small number of responses for many of the
6 tasks. According to discovery Verizon provided in both New York and Virginia,
7 a substantial number of the task times were based on five survey responses or less,
8 with quite a few estimates being based on one response alone.⁶⁵

9 Such small samples give extreme importance to what may be outlier
10 inputs. A simple example illustrates this point. If we want to estimate the
11 average height of adult Americans and measure the height of only one or two
12 individuals, there is a nontrivial chance that we would select unusually short or
13 unusually tall people and therefore misestimate the true average. The more people
14 we include in our sample, the greater the likelihood that we will produce an
15 accurate estimate.

16 The risk of outlier estimates is always a problem in small samples. It takes
17 on a particular significance in this case because Verizon's survey was designed in
18 such a way as to increase the chances that any given respondent would provide a
19 misleading or inaccurate estimate of the task time being measured.

⁶⁵ Verizon New York's Response to ATT-BA-191 in NYPSC Case 98-C-1357; Verizon
VA's Response to AT&T/WCOM 6-21. As we noted above, Verizon Response to
(continued)

1 **Q. IS THE LIST OF TASKS THAT VERIZON PROVIDED TO SURVEY**
2 **RESPONDENTS LIKELY TO PROMPT EXAGGERATED TIME**
3 **ESTIMATES?**

4 A. Yes. Verizon's survey divides tasks into artificially small steps that could easily
5 have caused survey respondents to make varying interpretations of the estimates
6 being sought and almost certainly led to inflated task time estimates. For
7 example, Verizon listed 38 separate tasks for the Regional CLEC Coordination
8 Center ("RCCC") workgroup, a group whose job it is to coordinate the
9 provisioning of UNE requests.⁶⁶

10 **Q. HOW DOES THE WAY VERIZON DIVIDED ACTIVITIES INTO A**
11 **LARGE NUMBER OF DISCRETE TASKS AFFECT THE RESULTS**
12 **THAT VERIZON HAS OBTAINED?**

13 A. Verizon's survey form breaks down tasks so that the survey taker must artificially
14 consider them as one-at-a-time steps. This methodology does not capture the way
15 that technicians actually perform the tasks in question. For example, a frame
16 technician might "review" a large batch of service orders all at once and then
17 proceed to run the necessary jumpers for a number of orders. If the technician is
18 asked, as the Verizon survey does, to estimate how long it takes to do each step in
19 sequence, he or she is likely to provide a higher total estimate of the task time than

AT&T/WCOM 6-31 is misleading on this point. It indicates much larger sample sizes than would appear to be correct based on the individual responses provided.

⁶⁶ Verizon Cost Panel Direct at 307.

1 if asked the average time per jumper based on an examination of the overall
2 process.

3 The multiplicity of tasks that Verizon identified for each activity probably
4 caused survey respondents to increase their overall estimate of the time needed to
5 perform the tasks. The Verizon methodology created a classic opportunity for
6 what cognitive psychologists and behavioral economists call the “unpacking
7 effect.” This well-documented cognitive bias says that, when asked to provide
8 estimates for multiple components of an entire activity or phenomenon, the sum
9 of the estimates that individuals provide for each of the parts usually exceeds the
10 estimate that they would provide for the whole, if asked.⁶⁷ Verizon aggravated the
11 unpacking effect through both its instructions to respondents and its approach to
12 aggregating task time estimates.

13 **Q. HOW DID VERIZON AGGRAVATE THE UNPACKING EFFECT**
14 **THROUGH ITS INSTRUCTIONS TO RESPONDENTS AND ITS**
15 **APPROACH TO AGGREGATING TASK TIME ESTIMATES?**

16 A. Verizon used “not applicable” (“N/A”) (or blank) responses in a way that
17 inappropriately increased work-time estimates. It seems likely that many of the
18 estimators responded N/A if they had incorporated the time into another task or

⁶⁷ See, for example, Tversky, A., & Koehler, D. J. (1994). Support theory: A nonextensional representation of subjective probability. *Psychological Review*, 101, 547-567.

1 thought that the task was unnecessary. Indeed, Verizon's survey instructions
2 virtually forced them to do so. The instructions mandated that:

3 If you do not perform a particular activity in the
4 process of carrying out the work function, enter
5 N/A, for "Not Applicable," in lieu of a time
6 estimate. An estimate entry of "0" or connect or
7 disconnect box left blank is not acceptable. You
8 may be asked to separately provide estimates of
9 occurrences, i.e., an estimate of the percentage of
10 time a particular activity is necessary in order to
11 complete the specific work function.⁶⁸

12 Having explicitly restricted respondents from entering zero for any task,
13 Verizon then did not include N/A or blank responses in its calculation as zeros,
14 but instead excluded them from the calculation of average work-time estimates.
15 The effect of this approach is to make the sum of the average work-time estimates
16 (which is the basis for cost estimates that Verizon presents) much larger than the
17 average of the total work times that survey respondents reported for each activity.
18 For example, the sum of the average task times for Verizon's Engineering Work
19 Order activity is 809 minutes.⁶⁹ Had Verizon summed the task times that each
20 survey respondent reported for the Engineering Work Order activity and *then*

⁶⁸ Verizon Exhibit Part H, Section K, page 2 of 2 ("Instructions for Providing Estimates of Average Time").

⁶⁹ Verizon New York's Response to RLI-BA-134 in NYPSC Case 98-C-1357. Verizon VA's non-recurring cost study for this element uses a total task time of *****BEGIN VERIZON PROPRIETARY *** END VERIZON PROPRIETARY***** minutes for the Engineering Work Order activity. This decrease from the total 809 minutes seems to result from adjustments that Verizon has made to its survey data. Because we have do
(continued)

1 computed an average total activity time, the result would have been 401
2 minutes⁷⁰—just over half of the total activity time that Verizon computed by
3 averaging the work time estimates for each task without accounting for N/As,
4 blanks or zeros and then summing the averages for the individual tasks.

5 We find it very likely, given the vagueness of Verizon’s instructions, the
6 artificial separation of tasks, the duplicative task descriptions and the apparent
7 frequency of blank or “not applicable” answers, that many respondents intended
8 their “not applicable” or blank answers to mean that the task was not necessary at
9 all. As this example shows, the way in which Verizon processed its survey data
10 substantially inflates the overall task time results relative to the total estimates for
11 each activity that its own survey respondents provided.

12 **Q. DO VERIZON’S SURVEY INSTRUCTIONS APPEAR TO HAVE MISLED**
13 **RESPONDENTS IN OTHER WAYS?**

14 A. Yes. Verizon applied an occurrence factor to its study’s average work-times “to
15 adjust for the frequency that a given activity is performed.”⁷¹ However, Verizon’s
16 approach disassociates occurrence factors from the particular tasks and times.
17 Respondents were told that occurrence factors were to be dealt with separately.
18 For the average task times, they were specifically instructed that, for a given task,

not have adequate information involving the nature of those adjustments, we have used
information Verizon provided in New York for this example.

⁷⁰ The median result would have been even lower—228 minutes.

⁷¹ Verizon Cost Panel Direct at 316.

1 “your estimates [should] assume you perform it all the time.”⁷² The occurrence
2 factors were not gathered from the same people that answered the task time
3 surveys,⁷³ nor do they appear to have been gathered at the same time. The people
4 providing occurrence factors did not necessarily have the same interpretation of
5 the task in mind as the survey respondents upon which the average time was
6 based.

7 Verizon compounded this error by failing to sufficiently adjust for the
8 frequency with which tasks need to be performed. For example, only one task
9 included in the “conditioning” studies, “send tone,” was assigned an occurrence
10 factor of less than 100%.⁷⁴ Furthermore, Verizon VA assigned occurrence factors
11 of 100% to tasks that are not always necessary. For example, Verizon has
12 assigned a 100% occurrence factor⁷⁵ to the underground load coil removal task
13 “pump manhole if necessary,” even though Verizon will not always encounter
14 water in the manhole. And, because the task is described as “pump manhole *if*
15 *necessary*,” the survey respondents would not have been providing an average
16 time (taking into account occasions when pumping is not necessary), but the total

⁷² Verizon Exhibit Part H, Section K, page 2 of 2.

⁷³ Verizon Cost Panel Direct at 316; *see also* fn 16.

⁷⁴ Verizon Wholesale Non-Recurring Cost Model.

⁷⁵ Verizon has applied a 200% occurrence factor for this task, presumably assuming it requires two people 100% of the time. Verizon Wholesale Non-Recurring Cost Model.

1 time to pump, in anticipation that Verizon would adjust that time by an
2 appropriate occurrence factor.

3 **Q. DOES VERIZON'S STUDY METHODOLOGY SUFFER FROM ANY**
4 **OTHER DEFICIENCIES?**

5 A. Yes. Verizon's studies include the assumption of duplicative tasks. In addition to
6 the obvious double-counting that results from this approach, the request to
7 provide time estimates for the same task more than once, sometimes under the
8 same activity heading, may have been an additional source of confusion for the
9 survey respondents. For example, Verizon does not appear to have provided any
10 guidance to respondents as to why the survey for the Engineering Work Order
11 activity includes both the tasks "receive completion notice from Construction"
12 and "receive completion notice from Construction and final post the work order
13 on the cable plat(s)."⁷⁶ The second task seems, on its face, to completely
14 incorporate the first task. Strangely, the maximum time estimate for the first task
15 (16 hours) far exceeds the 5.5-hour maximum time estimate for the second, more
16 encompassing task.⁷⁷

⁷⁶ Verizon New York's Response to RLI-BA-134 in NYPSC Case 98-C-1357.

⁷⁷ *Id.* In both cases, however, the maximum time estimates likely reflect the same problem that we discussed with respect to the "acquire necessary and appropriate approval" task in a previous answer. That is, the high-end responses likely include the elapsed time from the end of the construction job to the receipt of the completion notice by the personnel who post work orders on the cable plat(s), not just the time that the latter personnel spent in handling the completion notice and posting the work orders.